15. (Amended) The method of any of claim 1, wherein the organic molecule inhibits hedgehog-mediated signal transduction with an ED_{50} of 1 mM or less.

16. (Amended) The method of any of claim 1, wherein the organic molecule inhibits hedgehog-mediated signal transduction with an ED_{50} of 1 μM or less.

17. (Amended) The method of any of claim 1, wherein the organic molecule inhibits hedgehog-mediated signal transduction with an ED_{50} of 1 nM or less.

20. The method of claim 1, wherein the organic molecule is administered as part of a therapeutic or cosmetic application.

22. The method of claim 1, wherein the organic molecule is administered as a topical formulation to skin to inhibit aberrant proliferation of epithelial cells.

23. The method of claim 1, wherein the organic molecule is administered to the patient to inhibit growth of a basal cell carcinoma.

27. (Amended) A method for inhibiting unwanted hair growth or unwanted cell proliferation in an animal, comprising topically administering to the animal a composition comprising an effective amount of a purified hedgehog antagonist, wherein the hedgehog antagonist is an organic molecule having a molecular weight less than 750 amu and which binds to *smoothened* and lessens the severity of a *hedgehog* gain-of-function, *patched* loss-of-function, or *smoothened* gain-of-function phenotype.

28. (Amended Three Times) A method for inhibiting unwanted hair growth or unwanted cell proliferation in an animal, comprising topically administering to the animal a composition comprising an effective amount of a purified hedgehog antagonist , or prodrug form thereof which is converted to a hedgehog antagonist under physiological conditions of the host animal, wherein the hedgehog antagonist is an organic molecule which interacts with *smoothened* lessens the severity of a *hedgehog* gain-of-function, *patched* loss-of-function, or *smoothened* gain-of-function phenotype.

36. (Amended) A method for inhibiting unwanted cell proliferation in an animal, comprising providing a cell,

treating the cell with a test compound, wherein the test compound is an organic molecule having a molecular weight less than 750 amu,

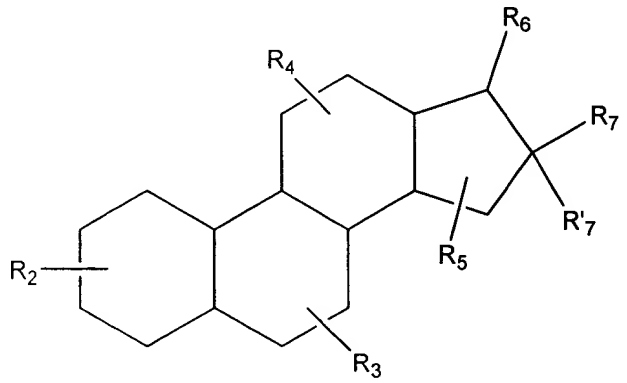
detecting a decrease in the level of unwanted proliferation in the cell indicative of a *hedgehog* inhibitory activity of the test compound, and

administering to the animal a composition comprising the test compound having a *hedgehog* inhibitory activity in an amount sufficient to reduce the unwanted proliferation in a cell of the animal.

Please add the following new claims:

37. (New) The method of claims 1, 27, 28, or 36, wherein inhibiting unwanted cell proliferation comprises treating medulloblastoma.

38. (New) The method of claims 1, 27, 28, or 36, wherein the composition comprises a compound represented in the general formula (I), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula I

wherein, as valence and stability permit,

R_2, R_3, R_4, and R_5 represent one or more substitutions to the ring to which each is attached, independently for each occurrence, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines,

amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

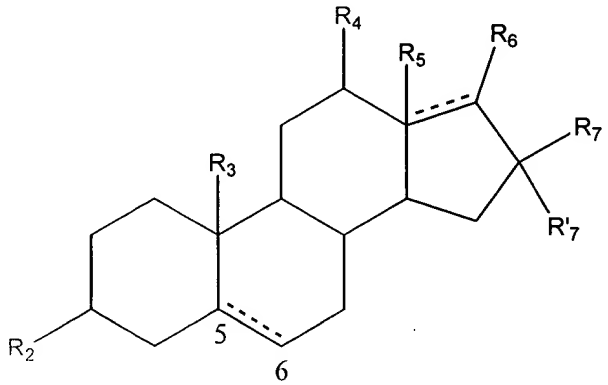
R_6, R_7, and R'_7 are absent or represent, independently, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$, or

R_6 and R_7, or R_7 and R'_7 taken together form a ring or polycyclic ring, which is substituted or unsubstituted, with the proviso that at least one of R_6, R_7, or R'_7 is present and includes a primary or secondary amine;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle; and

m is an integer in the range 0 to 8 inclusive.

39. (New) The method of claims 1, 27, 28, or 36 wherein the composition comprises a compound represented in the general formula (II), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula II

wherein R_2, R_3, R_4, and R_5 represent one or more substitutions to the ring to which each is attached, independently for each occurrence, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines,

imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

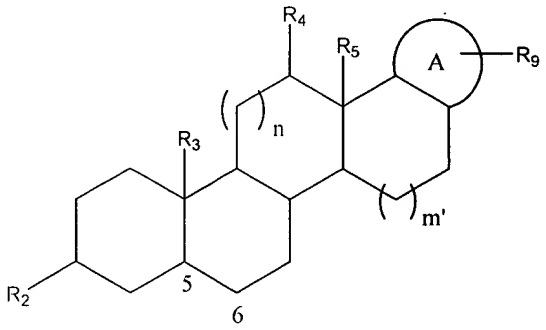
R_6, R_7, and R'_7 are absent or represent, independently, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$, or

R_6 and R_7, or R_7 and R'_7 taken together form a ring or polycyclic ring, which is substituted or unsubstituted, with the proviso that at least one of R_6, R_7, or R'_7 is present and includes a primary or secondary amine;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle; and

m is an integer in the range 0 to 8 inclusive.

40. (New) The method of claims 1, 27, 28, or 36, wherein the composition comprises a compound represented in the general formula (III), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula III

wherein

R_2, R_3, R_4, and R_5 represent one or more substitutions to the ring to which each is attached, independently for each occurrence, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides,

anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

A represents a monocyclic or polycyclic group;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle;

R_9 represent one or more substitutions to the ring A, which, independently for each occurrence, are selected from halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

m is an integer in the range 0 to 8 inclusive; and

n and m' are, independently, zero, 1 or 2;

with the proviso that A and R_9 taken together include at least one primary or secondary amine.

The claims presented above incorporate changes as indicated by the marked-up versions below.

1. (Amended Twice) A method for inhibiting unwanted ~~activation of a *hedgehog-patched* pathway~~hair growth or unwanted cell proliferation in an animal, comprising administering to the animal a composition comprising an effective amount of a purified organic molecule having a molecular weight less than 750 amu ~~in an amount sufficient to reduce the activation of the *hedgehog-patched* pathway in a cell~~, wherein the organic molecule interacts with *smoothened* and lessens the severity of a *hedgehog* gain-of-function, *patched* loss-of-function, or *smoothened* gain-of-function phenotype.

15. (Amended) The method of any of claims 1, wherein the organic molecule inhibits hedgehog-mediated signal transduction with an ED_{50} of 1 mM or less.

16. (Amended) The method of any of claims 1, wherein the organic molecule inhibits hedgehog-mediated signal transduction with an ED_{50} of 1 μM or less.

17. (Amended) The method of any of claims 1, wherein the organic molecule inhibits hedgehog-mediated signal transduction with an ED_{50} of 1 nM or less.

20. The method of claim 1, wherein the organic molecule is administered as part of a therapeutic or cosmetic application.

21. (Cancelled) ~~The method of claim 1, wherein the organic molecule is administered to treat a condition selected from regulation of neural tissues, bone and cartilage formation and repair, regulation of spermatogenesis, regulation of smooth muscle, regulation of lung, liver and other organs arising from the primitive gut, regulation of hematopoietic function, and regulation of skin and hair growth.~~

~~22.~~ The method of claim 1, wherein the organic molecule is administered as a topical formulation to skin ~~to inhibit aberrant proliferation of epithelial cells~~.

23. The method of claim 1, wherein the organic molecule is administered to the patient to inhibit growth of a basal cell carcinoma.

27. (Amended) A method for inhibiting unwanted ~~activation of a *hedgehog-patched* pathway~~hair growth or unwanted cell proliferation in an animal, comprising topically administering to the animal a composition comprising an effective amount of a purified hedgehog antagonist ~~in a sufficient amount to reduce the unwanted activation of the *hedgehog-patched* pathway in a cell of the animal~~, wherein the hedgehog antagonist is an organic molecule having a molecular weight less than 750 amu and which binds to *smoothened* and lessens the severity of a *hedgehog* gain-of-function, *patched* loss-of-function, or *smoothened* gain-of-function phenotype.

28. (Amended Three Times) A method for inhibiting unwanted ~~activation of a *hedgehog-patched* pathway~~hair growth or unwanted cell proliferation in an animal, comprising topically administering to the animal a composition comprising an effective amount of a purified hedgehog antagonist , or prodrug form thereof which is converted to a hedgehog antagonist under physiological conditions of the host animal, ~~in a sufficient amount to reduce the unwanted~~